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Women's Effective War Work Requires Good Posture

By

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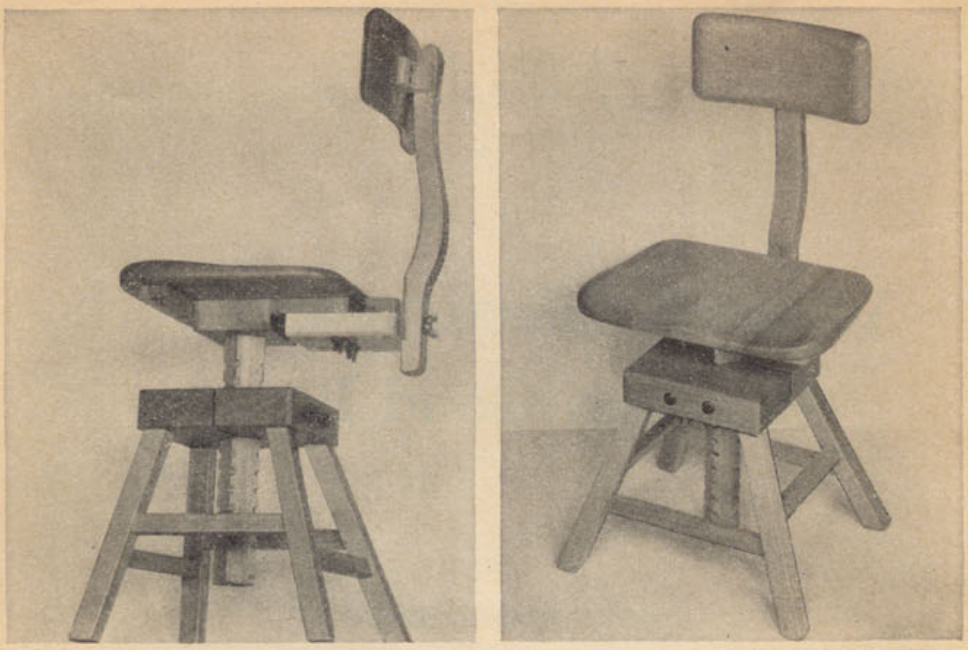
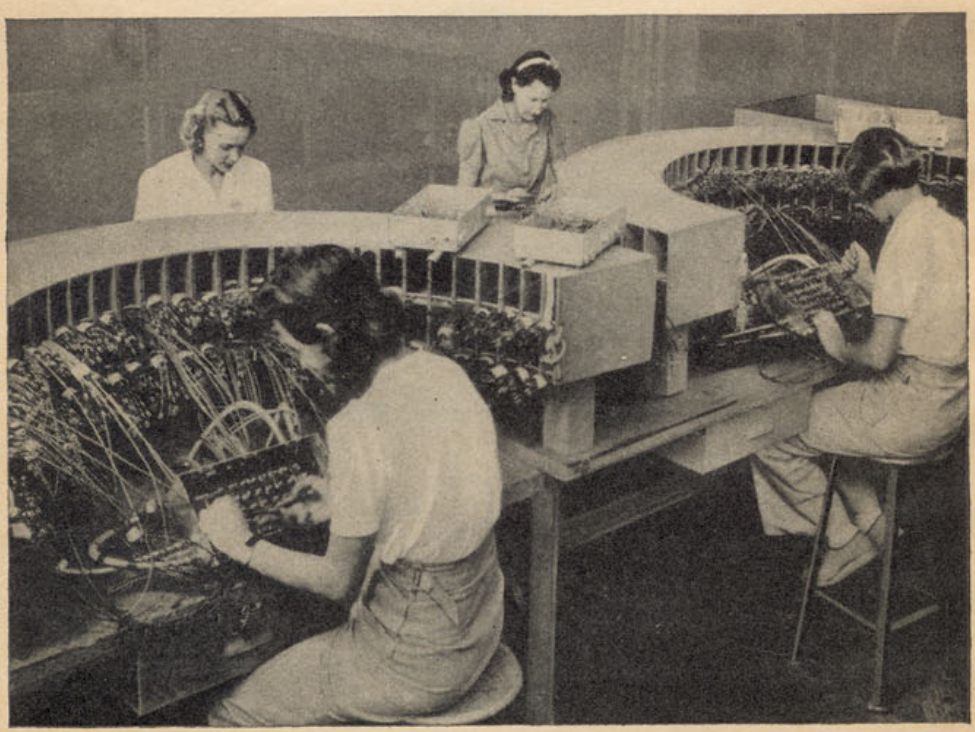


—Courtesy Koenig Co.

GOOD INDUSTRIAL CHAIRS; ADJUSTABLE, THOUGH USING ALMOST NO METAL IN ACCORDANCE WITH W. P. B. REGULATION.



POOR SEATING; NONADJUSTABLE; NO BACK SUPPORT; NO LEG ROOM.

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Wise management provides working conditions that will reduce fatigue to a minimum and keep workers as close as possible to peak production throughout the day. Adequate seating is one of the conditions that a wise management will provide. Constant standing is a spendthrift of energy. Lack of seats or uncomfortable seating impairs production. It has been proved time and again that much of the burden of fatigue depends on the posture of the worker. Not only do waste effort and increased spoilage result from excessive standing or improper seats, but tired workers are more likely to have accidents. Even with today's restrictions on use of metal, suitable seats, largely of wood, can be provided.

Alternating from sitting to standing diminishes fatigue. No matter how correct the working position is it becomes irksome and tiresome after a protracted period. Constant standing is harmful but constant sitting may be just as bad.

By the use of adjustable seats, many jobs can be arranged for either sitting or standing. The work level should be constructed at average standing height, and each worker's chair should be adjusted to a height at which her elbows are the same distance from the floor whether sitting or standing.

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There must be no obstruction under bench or machine to interfere with the worker's knees when seated.

If careful analysis of the job shows that posture variation by use of alternate sitting and standing is not possible, rest periods should be introduced to vary posture. If the job must be a standing one proper seating facilities should be available during rest periods, and if the job requires continuous sitting it should be possible for workers to walk around during the rest period.

Provide Seats That Meet Good-Posture Requirements.

From a physiological point of view the correct sitting posture is that in which the weight of the body is carried on the bones that form the base of the pelvis and the body is held erect by muscular action that prevents sagging at the waist. Circulation is aided by keeping an angle greater than a right angle at the knee joints. Stooping should be reduced to a minimum.

To conform to these physiological needs the following are essentials in industrial seating:

It is necessary that the seat be adjustable to the height of the machine or bench.

The seat should be 16 to 16½ inches wide and slightly saddle-shaped.

The seat should not be too deep. Depth should be sufficient for comfort without constricting blood vessels under the knees. From 12½ to 13½ inches from front to back is adequate.

The back of the seat should support the lumbar region—the small of the back where fatigue first is noticeable. The back of the seat should be adjustable to the individual.

Footrests with a firm nonslip surface should be provided.

Seats that can be easily moved out of the way when the worker stands are desirable.

When employers say that workers prefer to stand, it is certain that seats have not been correctly adapted to the job. Common faults of industrial seating include (1) No back support; (2) fixed seats too high or too low; (3) seats poorly shaped and hence uncomfortable; (4) benches or tables too low to allow for the worker's knees while at correct sitting height; (5) no footrest; (6) too little room between seats.

Study the Job to Adapt It to Good-Posture Needs.

A job analysis is a preliminary requirement to the provision of a good factory seat. Each operation usually done standing should be studied to ascertain whether it can be performed from a seated position or while alternating standing and seated positions. Rearrangement of work material, readjustment of seats, or planning of special types of seats can make it possible to provide seating at almost any factory job on which women may be employed. Sliding seats have been devised for work caring for several machines or moving along a table. Conveyors or turntables can be adapted to make walking back and forth unnecessary. Crowding in plants to hasten war production may complicate the problem of seating workers, but it does not make proper seating impossible. Industrial-seat manufacturers have devised good-posture seats of wood so that the withdrawal of steel for immediate war needs will not make standing at work necessary.

Instruct the Worker in Good Posture.

A person may sit properly on any kind of seat, a soap box if necessary. To do so requires considerable muscular effort, which itself is fatiguing. On the other hand, a person may assume a poor posture in a well-designed chair.

The worker should be told that good posture is a necessary part of efficient operation on her job. She should be instructed to sit well back in the chair, with her back erect but not stiff, so that shoulders and arms will be free to move comfortably. She should know that slumping crowds the abdominal organs, retards circulation, impedes respiration, and increases fatigue.

The worker can improve her posture by learning to sit and stand well. Comparative pictures can be used to advantage in the training period to demonstrate the best way to sit and stand and the disadvantages of poor posture. The woman worker can improve her posture by selection of well-fitting shoes with low heels and room for the natural spread of the toes. Comfortable clothing suited to the work contributes to good posture. Maintenance of good posture and instruction in correct posture can well be combined with brief periods of exercise for workers who spend most of their workday seated.

Good Posture Is Dependent on Hygienic Factory Conditions.

Fatigue from any cause is almost certain to result in poor posture. Hence an important feature in the maintenance of good posture is attention to other factors in fatigue prevention, such as lighting. Good lighting is inseparable from good posture. The amount of light on the work should conform to the recommendations of the Illuminating Engineering Society approved by the American Standards Association in March 1942.[1] Lighting should be carefully designed to prevent glare. The value of good-posture seats can be nullified if the operator is forced to adjust her posture to prevent eyestrain.

The Properly Seated Worker Is a More Efficient Worker.

Of the beneficial effects of good-posture seating disclosed by investigations, the following are typical examples:

Providing chairs and tables suited particularly to the occupation increased production in a rubber factory so that 16 girls did as much work as 20 had done before.

Women polishing metal increased their output as much as 32 percent when special seats were provided that made it possible to work seated or standing.

When workers could alternate sitting and standing, muscular ability increased by 6 to 15 percent over muscular ability when either standing or sitting all the time.

Seating Is Especially Important to the Health of Women.

Seating is particularly important for women. Continuous standing may aggravate menstrual troubles, and under no circumstances should it be required of pregnant women. Further, because of their tendency to suffer from varicose veins, standing is harmful for women. In the recent medical study of 536 New York department-store employees over 40 years of age who had been at least 10 years at this work,[2]

[1] Illuminating Engineering Society. American Recommended Practice of Industrial Lighting. Approved March 17, 1942, by American Standards Association. For brief summary of provisions of these standards see Women's Bureau Bul. No. 193.

[2] Lake, Michael, M. D.; Pratt, Gerald H., M. D.; and Wright, Irving S., M. D. Arteriosclerosis and Varicose Veins: Occupational Activities and Other Factors. *In* Journal of the American Medical Association, Vol. 119, No. 9, June 27, 1942, pp. 696–701.

women who stood or walked showed a higher incidence of varicose veins than those who sat at their work, a condition not found among men. Moreover, there was a decided difference between the men and the women in the incidence of varicose veins. The difference was by no means due solely to pregnancy, as is clear from the following:

	Percentage with varicose veins
Men	40.7
Women	73.2
Never pregnant	66.9
One or more pregnancies	79.5

The physicians who made this study attribute the difference, at least in part, to the "noticeable difference in the firmness of the surrounding tissues supporting the venous back pressure." The part played by high heels and inactivity of leg muscles has not been explored.

State Regulations.

All States but Mississippi have laws that require some kind of seating accommodations for women workers. Most of the laws require that seats be available for women when they are not actively engaged in their duties or when sitting does not interfere with the proper discharge of duties. Few give consideration to seating at the job.

In many States the laws apply to all or practically all occupations or industries, in a number to manufacturing and mercantile establishments, and in a few to mercantile occupations only. Manufacturing occupations or industries are covered in the laws of all States but Alabama, Florida, Maryland, Mississippi, North Dakota, and South Carolina. The extent of enforcement varies widely even in normal times. With the rapid new employment of women in war industries and the consequent overcrowding, the present situation as to enforcement is confused.

Most of the States specify that "suitable" seats shall be provided, some designate "chairs, stools, or other contrivances," a few provide that seats may be permanent fixtures so adjusted as not to obstruct the work. Regulations in four States—

Kansas, Minnesota, New York, and Ohio—specify seats with backs; in California, Kansas, and Washington there must be footrests. California and Washington require adjustable seats at work tables or machines to permit the position of the worker in relation to her work to be substantially the same whether seated or standing.

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